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TITLE: SALIVARY CYTOKINE — A NON-INVASIVE PREDICTOR FOR THE DEVELOPMENT OF BRONCHOPULMONARY DYSPLASIA IN PREMATURE NEONATES

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CONTENT:

Bronchopulmonary dysplasia (BPD) is one of the most common respiratory morbidity in premature neonates and causes several complications in their future life. Researchers revealed strong correlation of cytokines with the development of BPD. Nevertheless, in most of the previous studies, cytokines were obtained from serum, plasma, tracheal aspirates, or bronchoalveolar lavage, which were invasive and might result in iatrogenic anemia to these tiny premature neonates. In this study, we aimed to provide a less invasive method of cytokine detection by analyzing the neonates’ salivary cytokine.

Premature neonates younger than 34 weeks of gestational age born from August 2012 to May 2017 were enrolled in our study. Neonates of mother with sepsis or clinical chorioamnionitis, and those with perinatal infection within 7 days of life were excluded. Salivary samples were collected from each neonate on their first (D1) and seventh (D7) day of life. Salivary cytokine levels were detected by MILLPLEX® MAP. Other laboratory and clinical data were collected from their medical records. Kruskal-Wallis test, chi square test, and logistic regression test were used to analyze the salivary cytokine levels and the clinical characteristics among the four groups: the control group, the mild BPD group, the moderate BPD group, and the severe BPD group.

125 survived neonates met the criteria and were enrolled in this study — 33 in the control group, 26 in the mild group, 25 in the moderate group, and 41 in the severe group. In Kruskal-Wallis test, their gestational age (GA) and birth weight (BW) was strongly and negatively associated with the BPD severity. The levels of D1 salivary Interleukin (IL)-6, IL-8, IL-10, IL-17, Interferon (IFN)-γ1, and D7 salivary IL-6 were significantly higher in the BPD groups than that in the control group (p = 0.001, 0.001, 0.000, 0.043, 0.037 and 0.001, respectively). After adjusted for GA and BW by logistic regression, D7 salivary IL-17 and IFN-α2 levels were significantly lower in the moderate and severe BPD groups compared to the control group (p = 0.027 and 0.025 in IL-17; p = 0.036 and 0.023 in IFN-α2.)

Our research revealed that early-life salivary cytokine levels, especially lower IL-17 and IFN-α2 levels, were associated with future development of BPD in premature neonates. These results add a new view of salivary cytokine expression to the pathogenesis of BPD, helping us predict and prevent this critical pulmonary morbidity early.

IMAGES:
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=59c244537e0fa3a6aa8efe02cac06814-MjAxOS0wNSM1Y2UyNjY2YzNmOTQ3

Table 1: The association between BPD severity and D7 salivary IL-17/IFN-α2 levels in premature neonates before and after regression.

COI: None declared